Size: 422 acres
Mission: Military Traffic Management Command, Western Area
HRS Score: NA
IAG Status: None
Contaminants: POLs, trichloroethene, solvents, lead, PCBs
Media Affected: Groundwater and soil
Funding to Date: $3.3 million
Estimated Cost to Completion (Completion Year): $14.4 million (FY2004)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY2002

Oakland, California

Restoration Background

In July 1995, the BRAC Commission recommended the complete closure of Oakland Army Base (OARB) by July 2001 and relocation of the mission of the Military Traffic Management Command, Western Area (MTMCWA) and the 1302d Major Port Command.

In 1989, OARB initiated Installation Restoration Program (IRP) activities at potentially contaminated areas. Included in those areas are underground storage tanks (UST) that contained diesel and fuel oil, gasoline, waste oil, and waste liquid. Before 1994, 33 of the 38 identified tanks were removed. Several of the excavated UST sites required soil removal and groundwater monitoring.

Other areas of concern include. Berth 6 and Berth 6 1/2 storm drains, where bedding materials are contaminated with diesel fuel, waste oil, toluene, xylenes, and lead; oil and grease in the groundwater at Building 991; lead-contaminated soil at the West Grand Avenue Overpass in the U.S. Navy area and Roadside Areas in Operable Unit (OU1); trichloroethene (TCE)–contaminated soil and groundwater at Building 807; and soil contaminated with polychlorinated biphenyls (PCB) at Building 648.

The living quarters and recreational areas where children play were surveyed in FY95 for lead-based paint. Analysis of paint samples from the interior and exterior of the Capehart Housing Unit and from playgrounds for the interior and exterior of the EM Quarters showed lead contamination at levels above the action levels in several areas.

In FY96, the Army conducted an asbestos survey of the EM Quarters, the Capehart Quarters, and the Child Development Center. Of 31 samples taken, 7 indicated the presence of asbestos-containing materials in floor tiles, roofs, and dry wall, but none presented a hazard to residents and workers.

The Army formed a BRAC cleanup team (BCT) that includes representatives of EPA Region 9, the California EPA, and the BRAC environmental coordinator. The commander also formed a restoration advisory board (RAB). Key participants in the RAB include the BCT, members of the community, and technical consultants.

The installation issued the BRAC Cleanup Plan (BCP), conducted the basewide Environmental Baseline Survey (EBS), and issued the EBS Report.

FY97 Restoration Progress

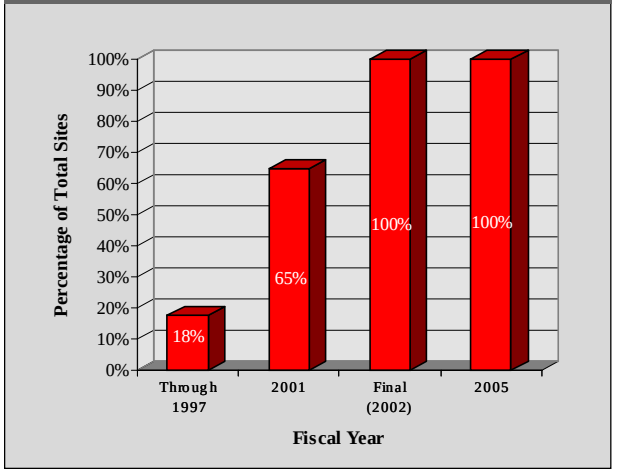
The Army initiated Remedial Investigations and Feasibility Studies (RI/FS) for OUs 1, 2, 3, and 7 as planned. Funding was obtained and activities were initiated for the UST closure program. The Army is using a Total Environmental Restoration Contract for all new projects to expedite the restoration process. In addition, the Army proposed 18 acres as CERFA-uncontaminated, but the regulatory agencies did not concur.

The BCT attended monthly remedial project manager and RAB meetings, observed Preliminary Assessment and Site Inspection (PA/SI) field activities, and educated the new state member. The BCT also worked with regulators to expedite review of environmental documents by alerting regulators to upcoming review periods and convening working meetings to reduce the number of regulatory comments.

Plan of Action

- Complete all phases of the PA/SI in FY98
- Perform RI/FSs for three OUs in FY98
- Begin the RI/FS for OUs 4, 5, and 6 in FY98
- Complete the RI/FS for OUs 1, 2, 3 and 7 in FY99
- Prepare Decision Documents for OUs 2, 3, and 7 in FY99; for OUs 1, 4, and 5 in FY00; and for OU6 in FY01
- Begin Remedial Action (RA) for OUs 2, 3, and 7 in FY99, and finish the RA for OU7 in FY99 and for OUs 2 and 3 in FY00
- Complete RAs at OUs 1, 4, 5, and 6 in FY01
- Remove all existing USTs before the property is transferred in FY01

Sites Achieving RIP or RC Per Fiscal Year



Oakland Fleet and Industrial Supply Center — BRAC 1995

Size: 667 acres
Mission: Receive, store, and issue military supplies and materials to fleet units and shore activities in the Pacific Basin
HRS Score: NA
IAG Status: Federal Facility Site Remediation Agreement signed in September 1992
Contaminants: Petroleum products, VOCs, SVOCs, PCBs, pesticides, and metals
Media Affected: Groundwater and soil
Funding to Date: $8.6 million
Estimated Cost to Completion (Completion Year): $33.5 million (FY2005)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY2002

Oakland, California

Restoration Background

In July 1995, the BRAC Commission recommended the closure of the Oakland Fleet and Industrial Supply Center. Operations at the installation include vehicle maintenance and repair and storage of hazardous wastes. The installation is scheduled to close in September 1998.

Since FY88, Environmental Investigations have identified 25 Installation Restoration (IR) sites and 3 underground storage tank (UST) sites at the installation. Soil and groundwater contamination at the installation is attributable to the operations of typical supply center facilities, including a hazardous waste storage yard, a transformer storage area, and other storage and maintenance areas.

The installation completed an initial site characterization for USTs 1, 5, and 8 in FY89. In FY93, the installation completed Interim Remedial Actions (IRA) for USTs 1 and 5. An IRA for UST 8 was completed in 1995, and a corrective action plan (CAP) was started.

During FY95, the installation completed Removal Actions for 11 IR sites and a Remedial Action Plan (RAP) for no further action on 11 IR sites. The installation also completed Phase I Remedial Investigations (RI) for five sites and Expanded Site Inspections for seven sites. A Baseline Risk Assessment was also completed for four sites.

In FY92, a partnering agreement was established among representatives of the Navy, the Department of Toxic Substances Control, and the Regional Water Quality Control Board. The partnership has accelerated the cleanup process at the installation.

The installation converted its technical review committee to a restoration advisory board (RAB) in FY95. The RAB has 18 members and meets once every 2 months. The installation also completed a community relations plan in FY94, compiled an administrative record in FY92, and established two information repositories in FY94.

In FY96, the installation established a BRAC cleanup team (BCT) while completing a Time-Critical Removal Action for six sites. The installation also initiated the revision of an RI report on UST Sites 1, 5, and 8 in consideration of the California Regional Water Quality Board guidance on closure of low-risk fuel sites.

FY97 Restoration Progress

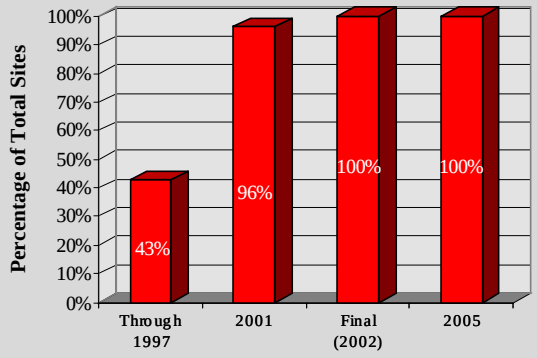
The final Baseline Risk Assessment, the RI for the offshore-sediment operable unit (OU), and the Phase II RI and Feasibility Study (RI/FS) for 10 sites were initiated. Ten sites still require Relative Risk Site Evaluation. Consolidation of the UST and IR programs improved site management.

Proactive and early presentation of data before submission of documents and discussion of issues in BCT and remedial project manager meetings helped expedite document review and resolve issues. Cooperation with the port of Oakland expedited site characterization for the offshore OU. Early feedback and guidance and regular RAB meetings improved partnering and community involvement. In addition, the BCT reviewed progress of all cleanup programs and completed the latest versions of the BRAC Cleanup Plan and the Environmental Baseline Survey. Two hundred acres proposed as CERFA-uncontaminated are awaiting approval from the appropriate regulatory agencies.

Plan of Action

- Complete two rounds of semiannual groundwater monitoring and RI for UST Sites 1, 5, and 8 in FY98
- Initiate a CAP for UST Site C1 in FY98
- Complete an additional investigation and a Removal Action for IR Site 2 in FY98
- Complete Phase II RI/FS for 10 sites in FY98
- Complete a streamlined RI/FS for the offshore-sediment OU in FY98

Sites Achieving RIP or RC Per Fiscal Year



Old Navy Dump/Manchester Annex NPL

Size: 350 acres
Mission: Originally provided harbor defense for Puget Sound; during World War I, tested torpedoes and stored fuel; later served as a fire training school for the Navy and housed an anti-aircraft artillery battery
HRS Score: 50.00; placed on NPL in May 1994
IAG Status: IAG signed in July 1997
Contaminants: PCBs, heavy metals, petroleum hydrocarbons, dioxins and furans, and asbestos
Media Affected: Surface water, sediment, and soil
Funding to Date: $2.4 million
Estimated Cost to Completion (Completion Year): $7.3 million (FY2001)
Final Remedy In Place or Response Complete Date: FY2001

Kitsap County, Washington

Restoration Background

The Navy owned the Old Navy Dump/Manchester Annex from 1919 to 1960. During that time, a net depot, a fire training area, and a landfill were established at the site. Activities at the former DoD property included maintenance, painting, sandblasting, and storage of steel cable net. Domestic waste, wood, and metal waste from the site and the Puget Sound Naval Shipyard were disposed of in a landfill. Currently, the National Oceanic and Atmospheric Administration, the National Marine Fisheries Service, an EPA laboratory, and a portion of Manchester State Park occupy the site.

Preliminary Assessments and Site Inspections (PA/SI) conducted at the site since FY87 identified past releases of hazardous substances from the three areas. Contaminants include heavy metals, poly-chlorinated biphenyls (PCB), petroleum hydrocarbons, dioxins and furans, and asbestos. The contaminants have been detected in soil at the landfill and at the fire training area, as well as in surface water and sediment at the site.

In FY94, the U.S. Army Corps of Engineers (USACE) completed the PA/SI process. USACE awarded a contract to conduct the Remedial Investigation and Feasibility Study (RI/FS) which includes preparation of the Proposed Plan, the Record of Decision (ROD), and the scope of work for the Remedial Design and Remedial Action (RD/RA). During FY95, Phase II RI/FS fieldwork was initiated. Also in FY95, a potential unexploded ordnance area was identified. USACE Huntsville Division has determined that the area is not accessible to the general public and thus should be considered for no further action.

In FY94, the Manchester Work Group, equivalent to a restoration advisory board, was established to facilitate restoration efforts at the site. The group includes representatives of EPA, the Washington State Department of Ecology, the U.S. Fish and Wildlife Service, tribal governments, and the local community. The work group has improved the decision-making process by fostering more open and proactive communication with the regulatory agencies. In FY95, the Manchester Work Group published quarterly newsletters to solicit the interest of community groups or individuals.

In FY96, USACE continued coordination with the Manchester Work Group. USACE completed all field investigation work and the draft RI/FS Report. USACE also evaluated whether Interim Remedial Actions (IRA) would be appropriate after initial data collection activities. It was determined that, because of potential inconsistencies with the final remedy, limited risk reduction, and limited acceleration of the schedule, IRAs are not appropriate for the site. Additional rounds of ground-water sampling for Phase I and II investigations continued throughout the fiscal year.

FY97 Restoration Progress

The Interagency Agreement (IAG) was signed, and the RI/FS was completed and accelerated by use of a landfill cap presumptive remedy. USACE prepared a Proposed Plan for RA, issued a ROD, and initiated the RD and RA. The RI/FS process was accelerated by preparing the draft final RI/FS and draft Proposed Plan concurrently. Additionally, the RD/RA was expedited by working on the draft final ROD and the draft RD/RA scope of work simultaneously.

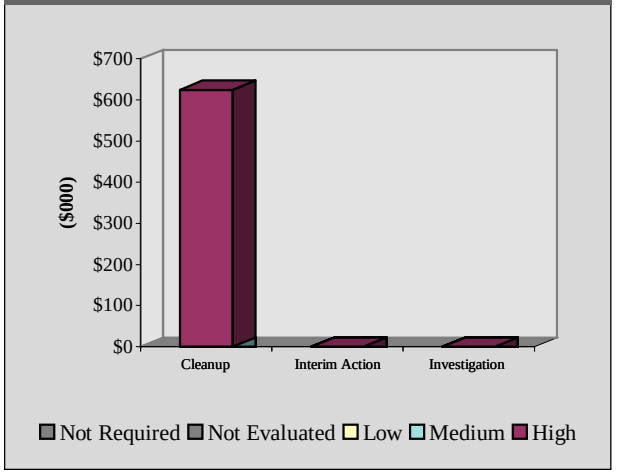
The Manchester Work Group continued to meet to discuss and resolve topics. Frequent conference calls were held with the regulatory agencies to expedite document review. A public meeting was held in FY97 to solicit public input on the Proposed Cleanup Plan. Additionally, two meetings were held to inform site employees of the plan and to identify their concerns.

The remaining USTs, which were scheduled for cleanup in FY97, will be cleaned and filled in place during the RA scheduled for FY99.

Plan of Action

- Complete RD in FY98
- In FY98, excavate dioxin-contaminated soil and debris from fire training simulators and dispose of off site
- In FY99, excavate landfill debris from Clam Bay intertidal zone and construct shoreline protection system
- In FY99, place clean sediment over intertidal Clam Bay sediment areas that exceed cleanup levels
- In FY99, install a cap over the upland portion of the landfill and a hydraulic cutoff system along upgradient edge of cap
- Clean and fill in place remaining USTs in FY99

FY98 Funding by Phase and Relative Risk



Ordnance Works Disposal Areas

Formerly Morgantown Ordnance Works

NPL

Size: 825 acres
Mission: Manufactured chemicals for ordnance
HRS Score: 35.62; placed on NPL in June 1986
IAG Status: None
Contaminants: PCBs, PAHs, inorganic compounds, arsenic, and mercury
Media Affected: Groundwater and soil
Funding to Date: $1.5 million
Estimated Cost to Completion (Completion Year): $1.4 million (NA)
Final Remedy In Place or Response Complete Date: NA

Morgantown, West Virginia

Restoration Background

On the basis of the results of environmental studies, sites at the Ordnance Works Disposal Areas in Morgantown were grouped into two operable units (OU). OU1 consists of an old landfill, a shallow disposal area from which topsoil has been removed, and two lagoons from which sludge has been excavated. OU2 consists of all other sites, particularly those located in processing areas.

The Remedial Investigation and Feasibility Study (RI/FS) for OU1 was completed in early FY88. The Record of Decision (ROD) for OU1, which was signed in FY89, stipulated that soil contaminated with polyaromatic hydrocarbon (PAH) compounds was to be excavated and treated in a bioremediation bed. Soil washing was selected as an alternative remedy if bioremediation proved infeasible.

In FY90, EPA issued Consent Orders for both OUs. In the same year, the potentially responsible parties (PRP) signed a participation agreement for OU2.

In FY94, a pilot-test work plan was approved for the cleanup of soil contamination at OU1, and remedial work began. In FY95, the draft work plan for OU1 Phase II Interim Remedial Actions was submitted to EPA for review.

In FY95, the draft RI Report for OU2 was submitted to EPA for review. OU2 areas contained elevated levels of organic and inorganic contaminants. Removal Actions were required for five areas of OU2, two at the main processing building and three at the coke ovens and by-products area. A Time-Critical Removal Action was proposed for limited areas. This proposal of a Removal Action after the RI phase eliminated the need for an FS. In FY96, the U.S. Army Corps of Engineers (USACE) reached an agreement for allocation of the cost of remediation at OU1.

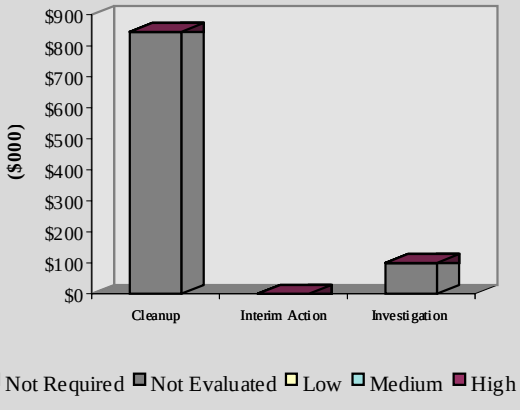
FY97 Restoration Progress

During the fiscal year, the PRP group, which includes the USACE, completed the Removal Actions at OU2 and received EPA concurrence on completion. To improve site management at OU1, the PRP group submitted a Focused Feasibility Study (FFS) to EPA for the OU1 remedy. EPA is continuing to work with the PRPs to expedite Remedial Actions (RA) at OU1.

Plan of Action

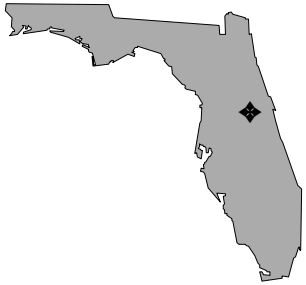
- Submit the final FFS for OU1 in FY98
- Begin RA at OU1 after EPA approval of FFS in FY98

FY98 Funding by Phase and Relative Risk



Orlando Naval Training Center

Size: 2,034 acres
Mission: Serve as Naval Training Center; formerly used as Army Air Force and Air Force bases
HRS Score: NA
IAG Status: None
Contaminants: Asbestos, paint, petroleum/oil/lubricants, photographic chemicals, solvents, and low-level radioactive wastes
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: $12.9 million
Estimated Cost to Completion (Completion Year): $13.5 million (FY2000)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY2000



Orlando, Florida

Restoration Background

The Orlando Naval Training Center has four areas: the Main Base, Area C, Herndon Annex, and McCoy Annex. Most of the operational and training facilities are located on the Main Base, a 1,093-acre parcel. Area C, located west of the Main Base on 46 acres, contains warehouse and laundry operations. Herndon Annex occupies 54 acres, containing warehouse and research facilities. McCoy Annex occupies 882 acres and contains housing and community facilities. From 1941 to 1968, the installation served as an Army Air Base and an Air Force Base. Since 1968, the installation has been a Naval Training Center. In July 1993, the BRAC Commission recommended closure of the installation and relocation of its activities to Great Lakes Naval Training Center, Illinois, and New London Naval Submarine Base, Connecticut. The installation is scheduled to close in 1999.

Environmental investigations that began in FY85 have identified 10 CERCLA sites and 4 underground storage tank (UST) program sites. In addition, the installation has identified 53 areas of concern (AOC) and more than 300 tank systems that require removal or assessment.

The installation has used generic remedies, such as landfill caps and slurry walls. It also has cleaned up UST sites, beginning with the replacement of three tanks at one UST site in FY92. Corrective action plans (CAP) for the three remaining UST sites were completed in FY93. In FY94, the installation completed the site screening fieldwork for 10 sites and began to prepare Remedial Investigation and Feasibility Study (RI/FS) work plans for all landfills. In FY95, RI/FS activities began at the Main Base Landfill site. The CAP was completed for one UST site, and an Interim Remedial Action (IRA) for groundwater began at another UST site. In addition, the installation completed the removal of 55 tanks and completed 45 UST assessment reports.

To expedite the closure process, the city of Orlando established the Orlando Redevelopment Agency to implement a land reuse plan. The installation also has worked closely with the state of Florida on UST cleanups and has initiated a partnership with EPA. The partnerships facilitated the signing of an Alternative Procedure Agreement with the state in FY93.

In FY94, the installation formed a restoration advisory board (RAB) and a BRAC cleanup team (BCT). The RAB has 15 community members and meets bimonthly. In FY95, Orlando completed its land reuse plan, and a community relations plan was developed. The installation completed an Environmental Baseline Survey that identified 1,133 acres as CERFA-clean.

During FY96, the BCT began partnering efforts with contractors and changed its name to the Orlando Partnering Team. The installation also completed site screenings of 12 AOCs and began screening of an additional 12. A Preliminary Assessment and Site Inspection (PA/SI) was completed and the RI/FS was initiated at the Laundry Area C Site. PA/SI activities were completed at two other sites. The installation completed a CAP for one UST.

FY97 Restoration Progress

RI/FS activities were initiated at the McCoy Annex Landfill, Old Pesticide Shop, and Groundskeeper Storage Area. An IRA at one UST site (McCoy Gas Station) was completed. Findings of suitability to lease (FOSL) were completed for 525 acres and site screenings were completed at 20 AOCs. Fieldwork on the final 13 AOCs was initiated.

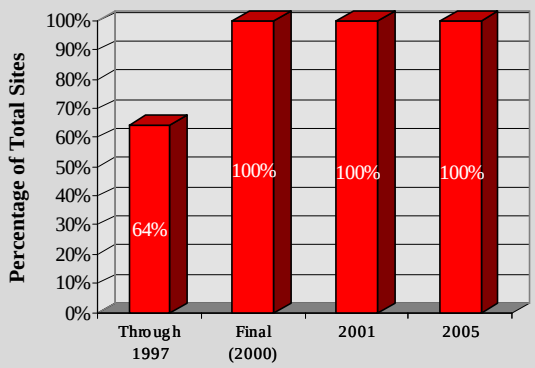
The BCT transferred 214 acres at Capehart Housing Parcel for $1.85 million and completed a Record of Decision (ROD) on OU1 and 20 site screenings. The BCT also removed and assessed 55 tanks. Soil removal was completed as part of the IRA for Study Area 52 and OU3. Terra-probe, cone penetrometer, ground-penetrating radar, and global positioning system techniques were used to expedite fieldwork.

Some work scheduled for completion in FY97 was not accomplished. FOSLs were completed for only 525 acres, and site screenings were completed at only 20 AOCs. Additional work in these areas has been scheduled for FY98.

Plan of Action

- Complete FOSL and findings of suitability to transfer (FOST) for 835 acres in FY98
- Complete site screenings for remaining AOCs in FY98
- Complete FOST for 1,100 acres (EDC parcel) in FY98
- Complete FOST for 75 acres (PBC parks parcel) by FY98
- Complete RI/FS on McCoy Landfill by FY98
- Complete RI/FS and IRA and begin Remedial Design at the Laundry Area C site in FY98
- Complete closure of the installation in FY99

Sites Achieving RIP or RC Per Fiscal Year



Pantex Plant

Formerly Pantex Ordnance Plant

NPL

Size: 16,000 acres
Mission: Produce and store military weapons
HRS Score: 51.22; placed on NPL in May 1994
IAG Status: Under negotiation
Contaminants: VOCs, SVOCs, heavy metals, chlordane, UXO, and explosives
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: $0.2 million
Estimated Cost to Completion (Completion Year): $12.1 million (FY2041)
Final Remedy In Place or Response Complete Date: FY2022

Pantex Village, Texas

Restoration Background

The former Pantex Ordnance Plant, located 13 miles northeast of Amarillo, Texas, began operations in 1942 as an Army Ordnance Corps facility. The property currently is owned by the U.S. Department of Energy (DOE) and Texas Tech University. Operations conducted there include fabrication, assembly, testing, and disassembly of nuclear ammunition and weapons. Past and present operations include burning of chemical waste in unlined pits, burial of waste in unlined landfills, and discharge of plant wastewaters into on-site surface water.

Environmental studies of the southern 5,000 acres, owned by Texas Tech University, have been ongoing since FY88. A Preliminary Assessment and Site Inspection completed in FY90 identified nine possible areas of emphasis (AOE) for investigation. It was suspected that some of the AOEs contained ordnance and explosives (OE). An Interim Remedial Action was conducted at three AOEs to remove OE from soil to a depth of 3 feet.

In FY94, a Phase I Remedial Investigation and Feasibility Study (RI/FS) began for two AOEs. RI/FS activities included sampling of surface and subsurface soil, sediment, surface water, and groundwater. Results of the analysis indicated that explosives, mercury, lead, chromium, and chlordane were the primary contaminants of concern. The installation began an Engineering Evaluation and Cost Analysis (EE/CA) of four AOEs at which Non-Time-Critical Removal Actions might be necessary.

In FY95, the final Phase I RI Report was completed for the hazardous, toxic, and radioactive waste (HTRW) project, and the draft EE/CA Report was completed for the OE project. In addition, a public meeting was held to present information about environmental restoration projects at the installation. DOE and Texas Tech University established a partnership with the Texas Natural Resource Conservation Commission (TNRCC) to continue quarterly groundwater sampling.

In FY96, a contract was awarded for preparation of a potentially responsible party (PRP) search work plan. The PRP work plan will address property owned by DOE and Texas Tech University. The PRP investigation for the Texas Tech University property will not be initiated until it is determined that further action is warranted.

Representatives of Texas Tech University, DOE, the community, and TNRCC met to review the status of the site and discuss concerns. TNRCC did not agree with the recommendation of the EE/CA Report. Therefore, the cleanup remedy recommended in the report was not implemented. TNRCC was expected to provide a written response to the report.

FY97 Restoration Progress

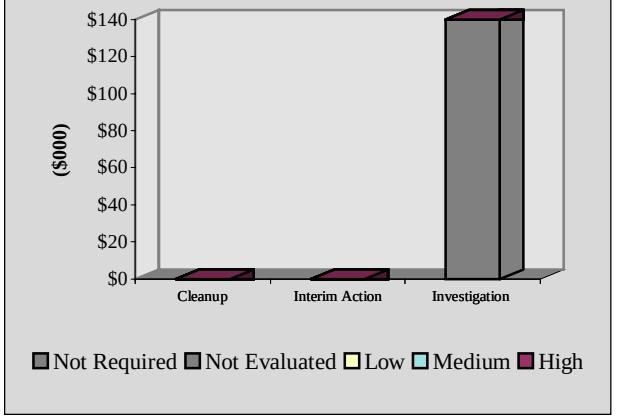
Contracts were awarded for the DOE PRP and Texas Tech property record search. Phase II HTRW investigation was initiated for the Texas Tech property. The DOE record search was completed, and a final report was submitted.

Selection and implementation of a cleanup remedy were delayed because TNRCC has not provided a written response to the EE/CA Report.

Plan of Action

- In FY98, implement the cleanup remedy recommended in the EE/CA Report for the OE project, after obtaining approval of TNRCC
- In FY98, review results of PRP search and meet with DOE and Texas Tech to determine PRP responsibility
- Conclude Phase II HTRW investigation in FY98

FY98 Funding by Phase and Relative Risk



Parris Island Marine Corps Recruit Depot NPL

Size: 8,043 acres
Mission: Receive, recruit, and combat-train enlisted personnel upon their enlistment in the Marine Corps
HRS Score: 50.00; placed on NPL in December 1994
IAG Status: Federal Facility Agreement under negotiation
Contaminants: Industrial wastes, pesticides, paint, petroleum/oil/lubricants, solvents, ordnance compounds, metals, acids, and electrolytes
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: $4.9 million
Estimated Cost to Completion (Completion Year): $18.4 million (FY2018)
Final Remedy in Place or Response CompleteDate: FY2008

Parris Island, South Carolina

Restoration Background

The Parris Island Marine Corps Recruit Depot was listed on the National Priorities List (NPL) in December 1994. The listing was due, primarily, to contamination at two landfill sites. Environmental investigations have identified 48 potential CERCLA and RCRA sites at the installation. Most of the sites are landfills or spill areas where groundwater and sediment are contaminated with solvents and petroleum/oil/lubricants. In FY86, an Initial Assessment Study identified 16 sites, 10 of which were designated Response Complete (RC).

In FY87, a Site Inspection (SI) was initiated for all sites. EPA prepared a RCRA Facility Assessment (RFA) for the installation in FY90. The RFA identified 44 solid waste management units (SWMU) and four areas of concern (AOC). All CERCLA sites identified previously were included as SWMUs or AOCs. All the SWMUs identified in the RFA are being addressed under the CERCLA process.

Of the 25 officially identified sites, 10 have been designated RC. At two sites, all tanks were removed and cleanup was completed, and five sites required no further action. In FY93, the installation completed an Expanded Site Inspection at the Causeway Landfill. During FY95, the installation began Remedial Actions involving tank removals, soil removal, free-product recovery, and soil vapor extraction at one UST site. Four storage tanks were removed. An Interim Remedial Action (IRA) was conducted at one of the landfill sites. A fence now restricts access to the landfill.

In FY95, the installation began negotiations to prepare a Federal Facility Agreement (FFA). Twelve sites that had been designated RC were reopened, with three being reclassified as RC soon after. Also, in partnership with the Navy Environmental Health Center, the installation began to develop a community relations plan (CRP). The Navy, the Marine Corps, EPA, and the state regulatory agency have begun to negotiate a formal partnering arrangement. The Agency for Toxic Substances and Disease Registry performed the initial public health assessment for the installation in FY95.

During FY96, the installation began Remedial Investigation and Feasibility Study (RI/FS) activities at four sites and completed Preliminary Assessment (PA) and SI activities at three. The installation also began an IRA at a spill area, completed an assessment of contamination at UST 2, and began preparation of a corrective action plan (CAP) for that site. A draft FFA was prepared. In addition, the installation began to compile an administrative record and submitted its draft CRP to the regulatory agencies for approval.

FY97 Restoration Progress

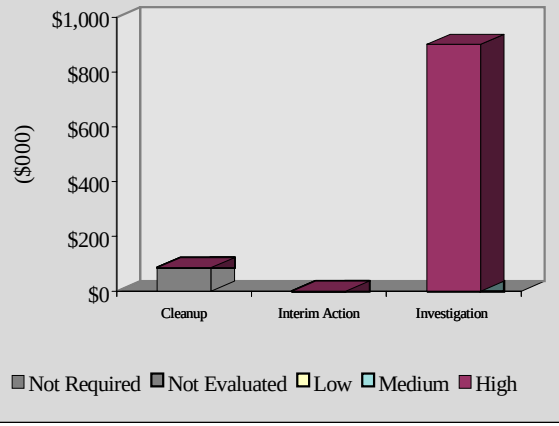
The CAP was completed, and corrective action for UST 2 was implemented. Also, the installation completed the IRA and initiated long-term monitoring for UST 1.

The CRP is nearing completion and restoration advisory board (RAB) formation is in its initial stages. FFA meetings are on hold; the final FFA will be based on partnering team results. Partnering team meetings are being held every other month. Three landfills will be investigated in FY98 by using the CERCLA Municipal Landfill Presumptive Remedy.

Plan of Action

- Complete the CRP in FY98
- Establish a RAB in FY98
- Sign the FFA in FY98
- Complete two RI/FSs in FY98
- Begin work on four RI/FSs in FY98
- In FY98, reopen Sites 9 and 15 (currently designated RC) for further investigation
- In FY99, complete work under the IRA at one spill area site

FY98 Funding by Phase and Relative Risk



Patuxent River Naval Air Station NPL

Size: 6,800 acres
Mission: Test and evaluate naval aircraft systems
HRS Score: 36.87; placed on NPL in May 1994
IAG Status: None
Contaminants: Heavy metals, pesticides, organics, petroleum/oil/lubricants, solvents, and UXO
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: 15.8 million
Estimated Cost to Completion (Completion Year): $107.9 million (FY2016)
Final Remedy in Place or Response Complete Date: FY2014

Lexington Park, Maryland

Restoration Background

Environmental studies, beginning in FY84, have identified 46 sites at this installation. Since the installation was placed on the National Priorities List (NPL), some sites have been combined with other sites or eliminated. Three sites were scored for placement on the NPL: the Fishing Point Landfill, the Former Sanitary Landfill, and the Pest Control Shop. Wastes managed at the Fishing Point Landfill included mixed solid wastes, petroleum/oil/lubricants (POL), paints, thinners, solvents, pesticides, and photographic laboratory wastes. Wastes handled at the Former Sanitary Landfill include mixed solid wastes, POLs, paints, thinners, solvents, and pesticides. Pesticides were handled at the Pest Control Shop.

Metals and pesticides, released primarily from landfills and spills, have contaminated soil, groundwater, surface water, and sediment. Remedial Investigation and Feasibility Study (RI/FS) activities began at several sites in FY85. Additional RI/FS activities included installation of shallow and deep monitoring wells; collection of soil borings; and collection of environmental samples, including samples of water, soil, sediment, and fish. Hydrogeologic testing also was conducted. Between FY86 and FY91, the installation initiated or completed several Interim Remedial Actions (IRA), including removal of drums, polychlorinated biphenyl (PCB)–contaminated soil, pesticide-contaminated soil, and ordnance.

In FY94, IRAs conducted at the installation included an ordnance sweep to remove remaining unexploded ordnance (UXO) and stabilize the shoreline. Shoreline stabilization has prevented the erosion of a landfill into the Chesapeake Bay. Groundwater treatment and recovery of free product also continued in FY94. In FY95, the installation conducted RI/FS activities at 11 sites. Sixteen underground storage tanks (UST) identified between FY87 and FY93 were grouped into six areas for further investigation. Interim Actions at two of the areas included groundwater treatment and recovery of free product.

In FY90, the installation formed a technical review committee, which met quarterly. The installation completed a community relations plan (CRP) in FY91 and established a restoration advisory board (RAB) in FY94. The Navy regularly updates an administrative record and two information repositories, both of which were established in FY95.

During FY96, the installation began a five-phase RI/FS for 16 sites, and a Record of Decision was signed for Site 11, the Former Sanitary Landfill. The installation also initiated IRAs at Site 11 to install a cap and at Site 24 to remove a drywell and sediment. The predesign and design phases were initiated for an IRA at Sites 6 and 17. The Corrective Measures Design was implemented at UST 1, along with a site Removal Action at UST 5. The installation also prepared a corrective action plan for UST 6. In addition, the CRP was updated.

FY97 Restoration Progress

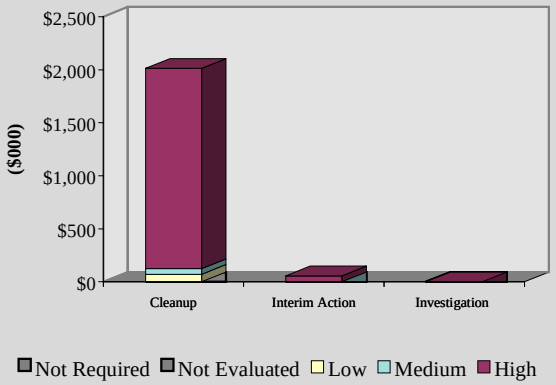
One early action took place at the installation, and a landfill cap was installed. Corrective action at UST 4 and two Interim Actions at UST 6 also were implemented. IRAs were completed at Sites 11 and 24. A geoprobe was used to collect subsurface samples.

Interaction between the installation and the RAB continued in FY97. RAB members were given an on-site tour of the Site 11 landfill to improve their understanding of the cleanup process.

Plan of Action

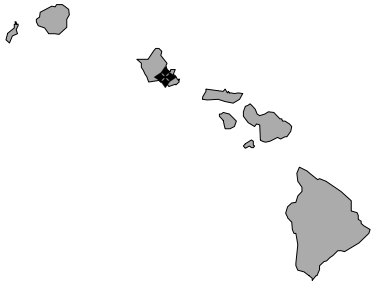
- Complete Site Inspection at five sites in FY98
- Complete IRA at Site 34 in FY98
- Complete Remedial Designs (RD) for Sites 6 and 17 in FY98
- Implement corrective action at USTs 1 and 5 in FY98
- Complete landfill cap design (FY98) and construction (FY99) for Sites 1 and 12
- In FY98, foster formal partnership with EPA, the state of Maryland, Engineering Field Activity Chesapeake, and installation personnel
- Complete RI/FS for 16 sites in FY99

FY98 Funding by Phase and Relative Risk



Pearl Harbor Naval Complex NPL

Size: 2,162 acres
Mission: Provide primary fleet support in the Pearl Harbor area
HRS Score: 70.82; placed on NPL in October 1992
IAG Status: Federal Facility Agreement signed in March 1994
Contaminants: VOCs, SVOCs, heavy metals, PCBs, pesticides, petroleum hydrocarbons, and solvents
Media Affected: Groundwater and soil
Funding to Date: $70.5 million
Estimated Cost to Completion (Completion Year): $125.7 million (FY2029)
Final Remedy in Place or Response Complete Date: FY2014



Pearl Harbor, Hawaii

Restoration Background

The Pearl Harbor Naval Complex (PHNC) consists of six installations: the Fleet and Industrial Supply Center, the Naval Station, the Naval Magazine, the Naval Shipyard, the Public Works Center, and the Inactive Ship Maintenance Detachment. Fuel supply activities, landfills, and other support operations have contaminated the soil and groundwater with volatile organic compounds (VOC), semivolatile organic compounds (SVOC), and metals.

The installation has been conducting environmental investigations and cleanups, under CERCLA and RCRA, at more than 30 sites since FY83. Between FY91 and FY93, Interim Remedial Actions (IRA) included excavation of polychlorinated biphenyl (PCB)- and dieldrin-contaminated soil at the Pearl City Junction, and excavation of PCB-contaminated soil at PCB-containing transformer locations at ASSETS School and off-site disposal. An IRA to remove five underground storage tanks (UST) and tetrachloroethene (PCE) contaminated soil from the Aiea Laundry site was completed in FY94. In FY95, the installation initiated one Site Inspection (SI) and two Remedial Investigations and Feasibility Studies (RI/FS). Approximately 7,000 cubic yards of soil were excavated, removed, treated by thermal desorption, and backfilled at the Site 22 oily waste disposal pit in FY95. In the same year, planning activities began for a full-scale extraction test for groundwater and free product at Site 36. Pilot-scale testing was completed for a soil vapor extraction (SVE) system at the Aiea Laundry site.

A technical review committee (TRC) formed in FY90 was converted to a restoration advisory board (RAB) in FY95. The installation established three information repositories in FY90 and an administrative record in FY92. A community relations plan (CRP) was completed in FY92 and updated in FY95. Several fact sheets have been prepared for TRC and RAB meetings. In FY94, the installation held several partnering sessions with the state and EPA Region 9. The installation also held meetings with the state to reach consensus on investigation and cleanup goals.

A Removal Site Evaluation (RSE) and a design package were initiated at Site 45 to address petroleum contamination. In addition, the RI/FS for the sediment at Site 19 continued. The Removal Action design packages for Sites 4 and 34 and the Site Summary Process for the Pearl Harbor Naval Complex also continued through FY97.

FY97 Restoration Progress

During FY97, IRAs were initiated at Sites 37 and 46 (Bunker C) and completed at Sites 8 and 36. Long-term monitoring (LTM) also was initiated at one site. Removal Actions were conducted for Sites 8, and 36. SIs were performed for Sites 40 through 42. The Preliminary Assessment and the SI also were finished for Sites 40 and 41. RAs and RI/FS were completed, and the IRA at Site 13 continued.

At Site 34, a solvent extraction technology was used to remove PCBs from concrete. PCBs also were removed from contaminated sediment in the catch basin at Site 13. Capping of landfill Site 8 employed an innovative technology called evapotranspiration. This process marked the completion of Site 8 cleanup, although groundwater monitoring will continue for 5 years. In addition, accelerated fieldwork techniques, including an on-site laboratory at Site 13 and a customized sediment sampling platform at Site 19, were implemented.

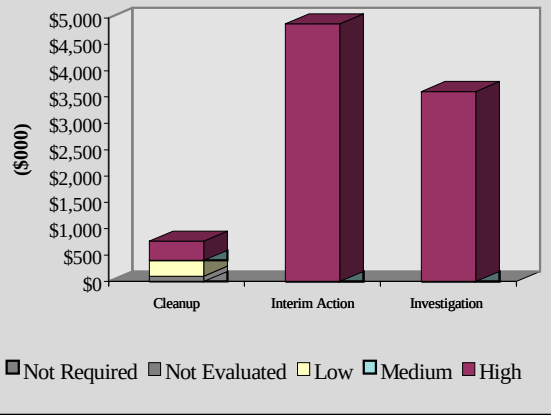
Two fixed-price Removal Action Contracts (RAC) were awarded in FY97. The RAB continued to meet quarterly, and COMNAVBASE Pearl Harbor co-chaired the meetings.

Some activities scheduled for completion in FY97 were delayed because additional sampling was required to characterize the dioxin-contaminated area.

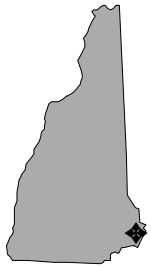
Plan of Action

- Complete the performance design package for the landfill in FY98
- Continue LTM and RI/FS activities at several sites in FY98
- Complete Phase II of RI/FS activities at two sites in FY98
- Continue RAs at three sites in FY98
- Initiate an IRA for five SWMUs in FY98
- Continue RA at Site 31 and RI/FS at Site 19 in FY98
- Implement the RI/FS planning documents at Sites 22 and 27 in FY98
- Initiate the RSE at Site 29 in FY98
- Continue the Site Summary Process for the PHNC in FY98
- Implement the design of the RA at Sites 4 and 10 in FY98
- Continue the LTM/LTO at Site 36 in FY98
- Implement electrokinetics at Site 10 and an innovative product recovery process at Site 45 in FY98
- Complete the Removal Action at Sites 37 and 46 and initiate LTM/LTO in FY98
- Begin RI/FS activities at Sites 19 and 43 in FY02

FY98 Funding by Phase and Relative Risk



Size: 4,257 acres
Mission: Served as Strategic Air Command bomber and tanker base
HRS Score: 39.42; placed on NPL in February 1990
IAG Status: Federal Facility Agreement signed in 1991
Contaminants: VOCs, spent fuels, waste oils, petroleum/oil/lubricants, pesticides, and paints
Media Affected: Groundwater and soil
Funding to Date: $138.2 million
Estimated Cost to Completion (Completion Year): $30.5 (FY2046)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY1998



Portsmouth/Newington, New Hampshire

Restoration Background

In December 1988, the BRAC Commission recommended closure of Pease Air Force Base. In FY91, the installation was closed as scheduled. Previous environmental studies at the installation identified the following site types: fire training areas, burn pits, industrial facilities, landfills, and underground storage tanks (UST). Groundwater and soil are contaminated with petroleum products, namely JP-4 jet fuel, and industrial solvents, such as tricholoroethene (TCE).

The installation completed several Interim Remedial Actions, including pilot groundwater Treatment Studies, at four sites; soil removal at three sites; and test pit operations at two sites. It also completed three soil vapor extraction (SVE) Treatability Studies and one bioventing Treatability Study. The installation removed 158 USTs and associated contaminated soil.

A BRAC cleanup team (BCT) was formed in FY93. To streamline the restoration process at the installation, the BCT developed a procedure for completing the Remedial Design (RD) concurrently with Remedial Action (RA). That approach has saved a significant amount of time in implementing remedial systems. Most actions will be implemented within 1 year to 18 months after the Records of Decision (ROD) are signed.

A restoration advisory board (RAB) was formed in FY95 from the installation's technical review committee. The RAB meets monthly and has been active in the RA process. A citizens group, Seacoast Citizens Overseeing Pease Environment (SCOPE), has participated in meetings and assisted in the development of cleanup options at the installation. SCOPE will continue evaluating the operation of RAs during operation and maintenance (O&M) and long-term monitoring (LTM).

During FY95, six RODs were signed, bringing the total number of completed RODs to 10. Cleanup actions were completed at seven locations, and a large remediation system was put into operation at Fire Training Area 2. Innovative technologies implemented include landfill consolidation and natural attenuation of groundwater.

In FY96, the installation held a community open house that focused on RAs at the installation. Steps were taken to transfer the remaining property to the Local Redevelopment Authority (LRA) under a public benefit transfer. LF-5 capping was completed, construction of the SVE and air sparging system at Site 45 began, and wetlands restoration at LF-6 was completed.

Also in FY96, construction began on the large bioventing system at Site 13, the SVE and air sparging system in Zone 2, and the groundwater recovery system in Zone 3. After demonstrating the impracticability of reducing the levels of groundwater contaminants to concentrations at or below maximum contaminant levels (in accordance with an EPA Technical Impracticability directive), the installation began implementing the groundwater containment system at Site 32. The final Remedial Investigation and Feasibility Study (RI/FS) work was completed for the Brooks and Ditches Operable Unit (OU).

FY97 Restoration Progress

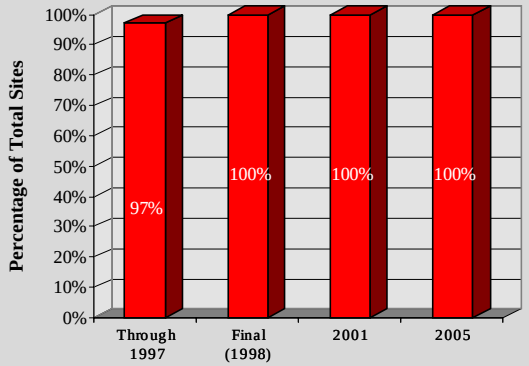
The final ROD for the Brooks and Ditches OU was signed. The remaining remediation systems were brought on line, and O&M and LTM were initiated at the remaining sites. Trend analyses of site responses to cleanup activities were initiated to facilitate Site Closeout and will continue until all sites have been completed. System startup reports were issued, quarterly data submissions made, and the first annual report issued for Site 8. The BCT completed a finding of suitability to lease/Supplemental Environmental Baseline Survey document in support of a public benefit conveyance in June. A new area of contamination, Site 46, Communications Building 22, was discovered in June 1997 through an environmental site assessment conducted by a developer of the parcel. The Air Force immediately began site characterization and RI.

Use of Hydro-Punch technology and on-site regulator/LRA coordination facilitated daily field decisions and permitted accelerated fieldwork for newly discovered sites. The Air Force, Air Force Contractor, and regulators held weekly construction progress meetings for all work conducted in FY97. Concurrent, on-board review meetings are held with contractors, regulators, and RAB stakeholders. A public hearing was held for the Brooks and Ditches ROD, and all proposed action items were accepted.

Plan of Action

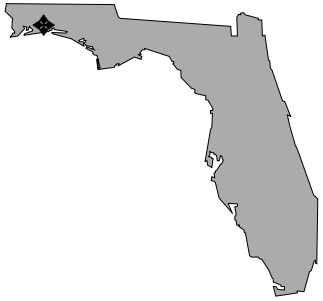
- Complete streamlined RI/FS and RD/RA for Site 49 in FY98
- Conduct an early RA and a full-scale Treatability Study concurrent with ROD completion for Site 49 in FY98
- In FY98, implement source area treatment for TCE in groundwater at Site 73
- Continue data trend analysis for all ongoing RAs in FY98

Sites Achieving RIP or RC Per Fiscal Year



Pensacola Naval Air Station NPL

Size: 5,874 acres
Mission: Serve as a flight training center
HRS Score: 42.40; placed on NPL in December 1989
IAG Status: Federal Facility Agreement signed in October 1990
Contaminants: Ammonia, asbestos, benzene, cyanide, heavy metals, paints, PCBs, pesticides, phenols, plating wastes, and chlorinated and nonchlorinated solvents
Media Affected: Groundwater,surface water, sediment,and soil
Funding to Date: $47.3 million
Estimated Cost to Completion (Completion Year): $67.5 million (FY2030)
Final Remedy in Place or Response Complete Date: FY2011



Pensacola, Florida

Restoration Background

This installation, which now serves as a flight training center, was formerly a naval air rework facility and aviation depot. Operations that have caused contamination at the station include machine shops, a foundry, coating and paint shops, paint stripping and plating shops, various maintenance and support facilities, landfills, and storage facilities. Environmental investigations conducted at the installation since FY83 have identified 38 CERCLA sites, 1 solid waste management unit (SWMU), and 15 underground storage tank (UST) sites.

Site types include landfills, disposal sites, polychlorinated biphenyl (PCB) transformer and spill areas, industrial wastewater treatment plant areas, and evaporation ponds. The primary areas of concern are two landfills. All active CERCLA sites at the installation are in the Remedial Investigation and Feasibility Study (RI/FS) phase. Corrective measures have been taken at two UST sites. Cleanup activities, including the installation of a groundwater pump-and-treat system, have been conducted at the SWMU. The installation has conducted several Interim Remedial Actions (IRA) and Removal Actions to limit the threats posed by contaminated sites. In FY94, the installation removed a waste tank. It also removed industrial sludge containing heavy metals from sludge-drying beds and removed stained soil from various sites. At another site, a fence was installed to restrict access to an area containing drums.

In FY95, the installation began conducting IRAs at four sites and completed the RI/FS and the Proposed Plan for an additional site. A Record of Decision (ROD) was signed for no further action at Site 39. RI reports were submitted for 10 sites; RI fieldwork was completed for two of these sites. Petroleum-contaminated soil was removed from two UST sites.

The installation formed a technical review committee (TRC) in FY90 and converted it to a restoration advisory board (RAB) in FY94. The RAB has nine members, five of whom represent the community, and meets monthly. A community co-chair has been selected, and the charter has been completed.

In FY96, a new CERCLA site was added to the program, and two USTs were closed. The installation completed IRAs at four sites. The RI/FS was completed for four sites but was delayed, along with Proposed Plans for another four sites, until resolution of issues concerning use of institutional controls. The installation submitted an RI report for seven sites and completed an RI for Site 1. The installation also completed RI fieldwork for three sites and initiated RIs for nine other sites. Remedial Design (RD) activities began at Sites 32, 33, and 35.

FY97 Restoration Progress

The completed installation restoration activities included an RI/FS for Sites 4, 16, 28, and 36; an RI for nine sites; and RD for Sites 32, 33, and 35. An RD and a Remedial Action (RA) were initiated at five sites. Monitoring for UST 17 and 22 continued through FY97. The RA for Site 32 was initiated in October 1997. IRAs for Sites 1, 9, 10, 17, 18, and 25 were awarded in September 1997.

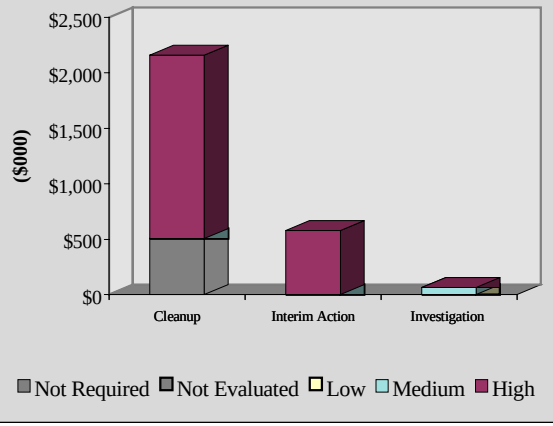
The National Oceanic and Atmospheric Administration has been included on the Partnering Team to assist in ecological risk assessment issues. The installation held an open exposition and discussion of each agency's role and limitations. The RAB participated in television appearances and newspaper interviews to encourage community involvement.

Some activities scheduled for completion in FY97 were delayed because of institutional control issues.

Plan of Action

- Complete RI for Sites 15, 19, 21, and 23 in FY98
- Complete RI/FS for Sites 7 and 18 in FY98
- Begin RD for Site 2 in FY98
- Continue development of an FS, a Proposed Plan, and a ROD for Sites 2, 9, 29, and 34 in FY98
- Complete FS, RA, and Proposed Plan and sign ROD for Site 1 in FY98
- Complete ROD for Site 38 in FY98
- Sign ROD for Sites 17 and 42 in FY98
- Complete IRA for Sites 1, 9, 10, 17, 18, and 25 in FY98
- Complete RD for seven sites in FY99
- Complete ROD for nine sites in FY99
- Begin RA for Site 38 in FY00
- Complete ROD for Sites 40 and 41 in FY00

FY98 Funding by Phase and Relative Risk



Size: 1,850 acres
Mission: Provide logistical support for ships and service craft; overhaul, repair, and outfit ships and craft; conduct research and development; test and evaluate shipboard systems
HRS Score: NA
IAG Status: None
Contaminants: Petroleum/oil/lubricants, heavy metals, PCBs, solvents, and VOCs
Media Affected: Groundwater and soil
Funding to Date: $18.2 million
Estimated Cost to Completion (Completion Year): $1.2 million (FY2005)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY1999

Philadelphia, Pennsylvania

Restoration Background

The Philadelphia Naval Complex comprises the Philadelphia Naval Shipyard, the Philadelphia Naval Station, and the Philadelphia Naval Hospital. In December 1988, the BRAC Commission recommended closure of the Philadelphia Naval Hospital. In July 1991, it recommended closure of the Philadelphia Naval Station and the Philadelphia Naval Shipyard. The BRAC 1995 amendment deleted preservation of the Naval Shipyard to provide for emerging requirements. A significant portion of the shipyard property now is scheduled for disposal.

Prominent site types at the complex are landfills, oil spills, and disposal areas that have released petroleum/oil/lubricants and heavy metals into groundwater and soil. A Preliminary Assessment and Site Investigation (PA/SI) completed in FY88 identified 15 sites.

In FY90, Remedial Investigation and Feasibility Study (RI/FS) activities were completed at four sites. The installation began RI/FS activities for eight sites and Remedial Design and Remedial Action (RD/RA) activities for four sites. The first phase of remediation was completed in FY92, and a Record of Decision (ROD) was signed for four sites. In FY93, two Interim Remedial Actions (IRA) were completed at six sites.

In FY92, A RCRA Facility Assessment identified 167 solid waste management units (SWMU) and 15 areas of concern (AOC). The Navy began a focused RCRA Facility Investigation (RFI) to address 15 SWMUs and AOCs. Risk assessments will be completed for the remaining SWMUs to identify a cleanup level or propose no further action. In FY90, four underground storage tank (UST) sites were identified. Removal Actions were conducted at three of the four sites. Environmental Baseline Surveys (EBS) were completed for the hospital in FY94 and for the shipyard and the naval station in FY95.

The Navy conducted an EBS Phase II investigation that required study of 57 areas at the complex. Currently, 21 areas have been determined to require further evaluation. During FY95, the installation signed an amended ROD and completed remediation for four sites. The installation also completed an RI and an IRA for Site 4. Removal Actions were initiated at two UST sites at the hospital.

The complex formed a technical review committee (TRC) in FY89. The installation also established a restoration advisory board (RAB). The RAB, which has 12 members, meets monthly. In FY95, an information repository was established and the community relations plan was written. The information repository is updated twice a year. The complex formed a BRAC cleanup team and prepared a BRAC Cleanup Plan (BCP) in FY94.

During FY96, RA was completed at four sites and two sites were closed out. The installation also completed a design and remedy for an RA at one UST site and began Removal Actions at four sites. The installation also drafted an Environmental Impact Statement and submitted it to the regulatory agencies for review.

FY97 Restoration Progress

Two early actions were implemented: Site 5 Riverbank Stabilization and Site 2 Sand Blasting Grit Removal. RDs were completed at one UST site and remedial activities were completed at two other UST sites. Two RAs were initiated and two were completed. Two sites were closed. The installation also completed the corrective measures implementation and the RFI for one SWMU.

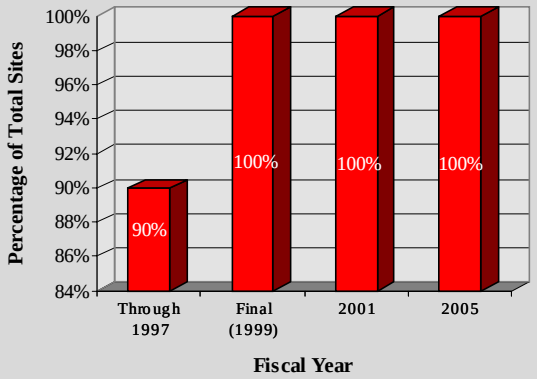
The BCP was revised extensively. The RAB continued to meet monthly and developed a poster station.

Some activities scheduled for completion in FY97 were delayed because barn owls were found in the incinerator. Addressing this problem will require further investigation and planning.

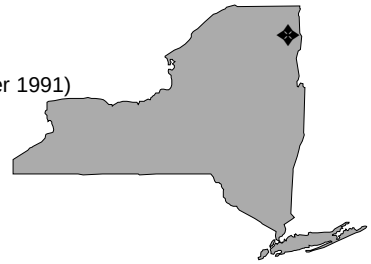
Plan of Action

- Begin long-term monitoring at two sites in FY98
- Complete a Removal Action at one SWMU in FY98
- Have all RAs in place by end of FY98
- Obtain a finding of suitability to transfer in FY98

Sites Achieving RIP or RC Per Fiscal Year



Size: 3,447 acres
Mission: Refuel and deploy aircraft
HRS Score: 30.34; placed on NPL in November 1989
IAG Status: Federal Facility Agreement signed in July 1991 (effective September 1991)
Contaminants: Organic solvents, pesticides, fuels, PCBs, and lead
Media Affected: Groundwater and soil
Funding to Date: $34.0 million
Estimated Cost to Completion (Completion Year): $14.0 (FY2028)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY1998



Plattsburgh, New York

Restoration Background

Environmental studies have been conducted at this base since FY87, and 40 sites have been identified for investigation and closure. Site types include underground storage tanks (UST), aboveground storage tanks, landfills, industrial facilities, spill sites, and training areas. Regulatory concurrence has been received for closeout of 11 sites. The installation was placed on the National Priorities List (NPL) after the former Fire Training area was determined to be a source of groundwater contamination with chlorinated solvents and benzene, toluene, ethyl benzene, and xylene.

The installation began a Remedial Investigation and Feasibility Study (RI/FS) in FY89. In FY91, the installation completed a Removal Action for soil contaminated with the pesticide DDT and for an abandoned UST. In FY92, a soil Removal Action was completed and a free-product removal system was constructed at the former Fire Training Area. At the latter site, more than 17,000 gallons of fuel have been recovered. In addition, the installation prepared Remedial Designs for closure of two landfills. The installation completed three Removal Actions in FY93: removal of a UST that had contained DDT, closure of a pretreatment facility, and removal of soil contaminated with lead. The installation completed Records of Decision (ROD) for three sites and constructed two landfill caps.

In FY95, the installation conducted an Interim Action to remove soil contaminated with fuel from two sites and prepared final RODs for the Pesticide Storage Tank and a landfill. The installation received regulatory concurrence for no further action at seven sites and completed surveys for endangered species, Phase I archaeology, and cold war resources. The installationwide Environmental Impact Statement and the comprehensive land reuse plan were completed, and the community relations plan (CRP) was drafted.

In FY96, the installation awarded a contract for construction of two additional landfill caps. The groundwater treatment facility for free-product recovery at the former Fire Training Area was upgraded and a source Removal Action using soil vapor extraction (SVE) and bioventing was initiated. Two additional Removal Actions using SVE began, and contaminated soil at three other sites was removed.

Partnerships between the BRAC cleanup team (BCT) and regulatory agencies have fostered open communication and cooperation. In FY94, the installation formed a restoration advisory board (RAB). Members of the BCT serve on the RAB in an advisory capacity.

FY97 Restoration Progress

An off-gas treatment/incinerator was tested at the former Fire Training Area in conjunction with the SVE. Geoprobes were used for screening and Removal Action delineations to accelerate fieldwork.

Combining the Treatability Study and the Engineering Evaluation and Cost Analysis (EE/CA) into one report saved 6 months. The BCT reviewed reuse issues such as transfers and leases and laboratory quality assurance and quality control variances. The BCT also planned RODs, resolved regulatory issues, and updated site status. The latest versions of the BRAC Cleanup Plan (BCP) and Environmental Baseline Survey (EBS) were completed.

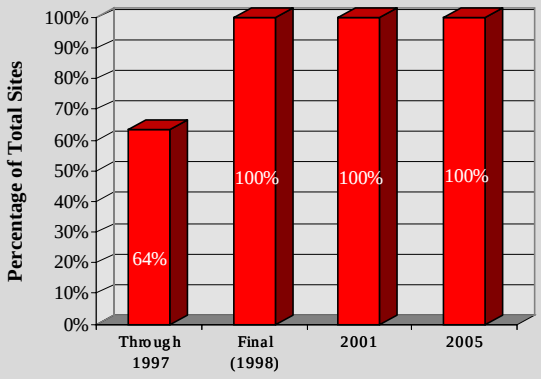
The installation held three public meetings at which RODs and Action Memorandums were proposed. The base also presented computer modeling of base groundwater contamination and its regional impact. The New York State Science Teachers Association was instructed on environmental technologies and given a site tour.

Some activities scheduled for FY97 were delayed because of contractor delays, negotiations with regulatory agencies, and the need for additional data or site characterizations.

Plan of Action

- Complete all ongoing Removal Actions and landfill caps in FY98
- Implement two additional Removal Actions in FY98
- Complete the Groundwater Impact Study in FY98
- Complete closure, investigation, and remediation of petroleum handling and storage facilities in FY98
- Update the CRP, EBS, and BCP in FY98
- Remove soil at two sites (land treatment area/RCRA landfill) in FY98
- Validate natural attenuation for Fire Training Area groundwater Operable Unit in FY98
- Complete suitability to lease or transfer for 90 percent of base property and close out six Installation Restoration Program sites by FY99
- In FY99, enter into a Memorandum of Agreement with the New York State Historic Preservation Office for preservation and transfer of historic property

Sites Achieving RIP or RC Per Fiscal Year



Port Hadlock Naval Ordnance Center

Pacific Division Attachment **NPL**

Size: 2,716 acres
Mission: Receive, store, maintain, and issue ordnance
HRS Score: 50.00; placed on NPL in May 1994
IAG Status: IAG signed in August 1996
Contaminants: TNT, RDX, heavy metals, PCBs, and VOCs
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: $6.6 million
Estimated Cost to Completion (Completion Year): $8.1 million (FY2006)
Final Remedy in Place or Response Complete Date: FY2000

Port Hadlock, Washington

Restoration Background

Since FY84, environmental investigations at this installation have identified 15 sites. The primary sources of contamination are landfills and ordnance disposal sites. Environmental investigations have focused on cleaning up existing, and preventing future, contamination of shellfish beds near the installation. Contaminants can migrate by overland flow into bays or through soil to the sea-level aquifer. The bays near Port Hadlock are used for both recreational and commercial fishing. An investigation completed in FY88 found trace metals (including lead), organics, and petroleum hydrocarbons in shellfish near the North End Landfill. A study in FY93 produced similar results.

In FY87, a tank was removed and field monitoring of explosive gas concentrations was completed at the buried Imhoff tanks. A Remedial Action (RA) for the site in FY87 involved installation of piping and fans to vent methane gas from the tanks. Two Removal Actions were completed in FY91. One involved removing abandoned underground storage tanks (UST); the other included removal of one UST and excavation and disposal of associated petroleum-contaminated soil. The installation performed an additional Removal Action at this second site in FY94, removing petroleum-contaminated soil and disposing of it at an off-site landfill.

In FY95, Interim Remedial Actions (IRA) were completed at three sites. At two sites, soil contaminated with ordnance was removed and disposed of off site. At the third site, sediment containing polyaromatic hydrocarbons (PAH) was removed. The two ordnance-contaminated sites are located in an area used by Native American tribes, prompting concerns about archaeological and cultural resources. A Record of Decision (ROD) for no further action was signed for these sites and three others. Erosion and groundwater discharge from Site 10 (a landfill) have contributed to contamination of surrounding beaches and had significant influence on National Priorities List (NPL) scoring. A ROD was signed designating capping for the landfill and installation of a seawall to minimize further erosion. The installation will use biogeoengineering techniques to prevent shoreline erosion.

The installation formed a technical review committee in FY88 and converted it to a restoration advisory board (RAB) in FY95. The RAB includes 30 members who represent regulatory agencies, local Native American Tribes, and neighboring communities. The RAB met quarterly in FY95 and monthly in FY96. A community relations plan (CRP) was developed in FY92, and the installation distributed fact sheets covering such topics as state involvement and oversight, the Site Hazard Assessment program, the results of shellfish and sediment sampling, and the results of cleanups.

During FY96, the CRP was revised, the installation completed the Remedial Design (RD) at Sites 10, 11, 12, 18, and 21, and the RA at Site 18. The Navy and the National Council of Historic Places signed a Memorandum of Agreement to protect archaeological remains during construction of the RA. The tribes also signed after consultation.

Compliance monitoring continued at one site and began at another during FY96. A Removal Action was initiated at Site 34 (an open burn and open detonation area that had been identified in FY95), ground-water monitoring began at Site 21, and compliance monitoring continued at Site 12. The Navy, EPA Region 10, and the state of Washington signed an Interagency Agreement (IAG) for eight sites.

FY97 Restoration Progress

RA was completed at Site 10. Operation and maintenance activities and compliance monitoring for groundwater began. The IRA at Site 34 and the Site Inspection (SI) were completed. Site 34 was proposed as a no-further-action site. Site investigations were initiated at Sites 33 and 35. Compliance monitoring continued at Sites 12 and 21, which must await regulatory acceptance before response is complete.

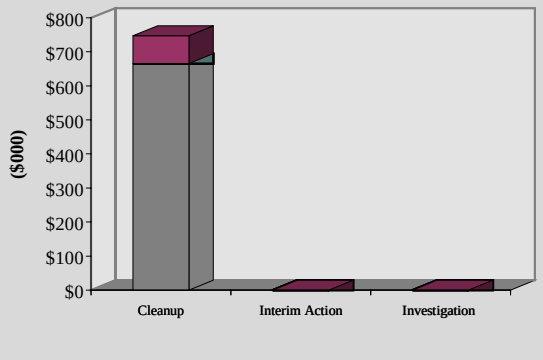
An early action at Site 10 involved use of a soft bank system consisting of rocks and vegetation to prevent the landfill from eroding. The installation also expedited document review by faxing information and holding predocumentation meetings to outline expectations before the document is drafted. The RAB met as needed in FY97. To promote community involvement, the installation held a ribbon cutting at the completion of the Site 10 landfill cap.

Some activities scheduled for completion in FY97 were delayed pending regulator acceptance of data for two sites. Site 10 monitoring will not be completed until 2002.

Plan of Action

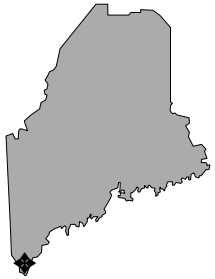
- Complete RA activities at two sites in FY98
- Begin SI at one site in FY98
- Complete SI and begin RD at one site in FY98
- Conduct long-term monitoring of groundwater and shellfish at Site 10 until 2002

FY98 Funding by Phase and Relative Risk



Portsmouth Naval Shipyard NPL

Size: 278 acres
Mission: Maintain, repair, and overhaul nuclear submarines
HRS Score: 67.70: placed on NPL in May 1994
IAG Status: Federal Facility Agreement under negotiation
Contaminants: Heavy metals, PCBs, pesticides, and VOCs
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: $17.6 million
Estimated Cost to Completion (Completion Year): $88.5 million (FY2016)
Final Remedy in Place or Response Complete Date: FY2007



Kittery, Maine

Restoration Background

Portsmouth Naval Shipyard was placed on the National Priorities List (NPL) in May 1994 after it was discovered that surface runoff and erosion from the installation were contaminating the Piscataqua River. Groundwater also was found to be contaminated in the vicinity of five sites.

A Preliminary Assessment (PA) completed in FY83 and a Site Inspection (SI) conducted in FY86 identified four potentially contaminated sites. A RCRA Facility Assessment conducted in FY86 identified 28 solid waste management units (SWMU). Site types at the installation include a landfill, a salvage and storage area, and waste oil tanks. In FY92, the installation completed a RCRA Facility Investigation (RFI).

In FY94, the installation completed an interim measure at the Defense Reutilization and Marketing Office scrapyard, and a Removal Action that involved installing a cap on a portion of the scrapyard. The installation also completed a groundwater and soil gas survey at another SWMU. Other activities accomplished in FY94 included completion of RFI fieldwork to address data gaps, development of onshore Media Protection Standards (MPS), and completion of draft offshore Ecological and Human Health MPSs. Seven underground storage tanks (UST) were removed during the RFI. Two of these UST sites remain under investigation so that the need for further cleanup can be determined.

In FY95, the installation prepared final reports on fieldwork conducted in FY94. It also began developing a work plan for data gap investigations and monitoring of the Piscataqua River. An Ecological Risk Assessment (ERA) of the Piscataqua River and Great Bay Estuary was initiated. The installation also began developing Preliminary Remedial Goals or MPSs for the installation. For the offshore investigation, the Navy Marine Environmental Support Office developed sampling and analytical methodologies for use in the marine environment. In addition, a draft Feasibility Study (FS) Report for 11 of 13 SWMU sites was submitted to regulatory agencies.

The technical review committee, which was formed in FY87, was converted to a restoration advisory board (RAB) in FY95. The installation developed a community relations plan (CRP) in FY93 and updated the plan in FY96.

In FY96, the Navy fostered partnering by including EPA, the Maine Department of Environmental Protection (MEDEP), and the natural resource trustees early in the decision-making process. EPA facilitated the smooth transition from the RCRA Corrective Action Program to a CERCLA cleanup program, and the installation began negotiations with EPA and MEDEP on a Federal Facility Agreement. The installation continued to develop a site management plan as a project management tool.

A work plan for investigation of groundwater and seeps also was completed during FY96. Another work plan was prepared for performance of additional site characterizations at four SWMUs, including modeling of offshore migration of contaminants.

FY97 Restoration Progress

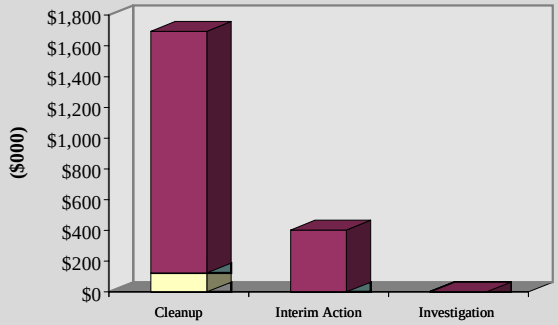
The installation completed a work plan for SWMUs 10 and 29 and Phase I groundwater modeling for SWMUs 8, 9, 10, 11, and 27. A work plan and three rounds of basewide groundwater sampling were also completed. In addition, the installation initiated a Removal Action at SWMU 9, and on June 19, 1997, completed and signed a no-further-action document for SWMUs 12, 13, 16, and 23.

To expedite document review, RAB and technical assistance grant consultants were invited to all technical meetings with the EPA and MEDEP. The CRP was updated.

Plan of Action

- Complete the ERA in FY98
- Complete site characterization for three SWMUs in FY98
- Complete an FS for one SWMU in FY98
- Complete Remedial Investigation for two sites in FY98
- Complete Phase II Fate and Transport Modeling in FY98
- Complete basewide groundwater sampling program

FY98 Funding by Phase and Relative Risk



Size: 27,827 acres
Mission: Housed 7th Infantry Division (Light); undergoing transition to support the Defense Language Institute Foreign Language Center, currently at the Presidio of Monterey, California
HRS Score: 42.24; placed on NPL in February 1990
IAG Status: Federal Facility Agreement signed in July 1990
Contaminants: VOCs, petroleum hydrocarbons, heavy metals, and pesticides
Media Affected: Groundwater and soil
Funding to Date: $166.1 million
Estimated Cost to Completion (Completion Year): $231.5 million (FY2028)
Final Remedy in Place or Resonse Complete Date for BRAC Sites: FY2011

Marina, California

Restoration Background

Since 1917, Fort Ord has served primarily as a training and staging installation for infantry units. In July 1991, the BRAC Commission recommended closing Fort Ord and moving the 7th Infantry Division (Light) to Fort Lewis, Washington. The Army closed Fort Ord in September 1994.

In FY87, a hydrogeological investigation identified the sanitary landfills at Fort Ord as potential sources of contamination for the city of Marina's backup drinking water supply well. In FY89, Remedial Investigation and Feasibility Study (RI/FS) activities were initiated for the landfills. In FY90, a Preliminary Assessment and Site Inspection identified 61 sites at the installation, including landfills, 241 underground storage tanks, motor pools, family housing areas, a fire training area, an 8,000-acre impact area, and an explosive ordnance disposal area. Petroleum hydrocarbons and volatile organic compounds (VOC) have migrated into groundwater.

In FY94, the installation commander converted the installation's technical review committee into a restoration advisory board and formed a BRAC cleanup team (BCT).

The FY95 RI/FS categorized 41 sites as requiring either no further action (NFA), Interim Action, or Remedial Action. The installation constructed a groundwater treatment system at the post landfill and completed a Record of Decsision (ROD) for the Fritzsche Army Air Field (FAAF) Operable Unit (OU) 1. A lead-removal pilot study was done at discrete sections of the Beach Trainfire Ranges (Site 3).

In FY96, the Army completed Proposed Plans and a Record of Decision (ROD) for the RI sites and remediation of lead-contaminated soil for the Beach Ranges. The Army began construction activities to cap the OU2 landfill and construct a groundwater pump-and-treat system. The existing landfill with groundwater treatment system was proposed as a corrective action management unit (CAMU) to allow consolidation of waste. This procedure saved at least $10 million in waste disposal costs and met the Superfund preference for on-site waste management.

FY97 Restoration Progress

Operation of the OU1 and OU2 systems continued. The Army prepared the Phase I Engineering Evaluation and Cost Analysis (EE/CA) addressing Removal Actions for ordnance and explosives. The EE/CA was reviewed by the community. The installation expects to complete the report and implement its recommendations in FY98. A draft Phase II EE/CA, also addressing ordnance and explosives, was prepared and began the review process. The installation's two operational soil biotreatment units should close in FY98.

A Cooperative Agreement allowed initiation of a subsurface characterization of Fort Ord that included use of seismic reflection and downhole resistivity tests. The installation also employed on-site laboratories and hydropunch technologies to expedite fieldwork.

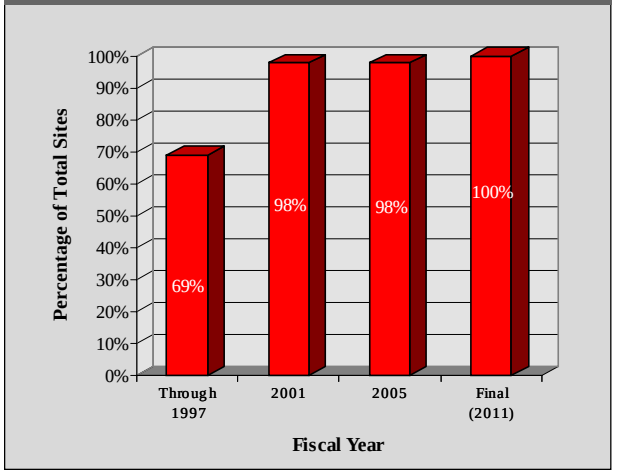
A team building session was held to improve BRAC Cleanup Team (BCT) productivity. The BCT completed the Phase I EE/CA document, a ROD for remedial sites, an interim ROD for Site 3, and an explanation of significant differences for OU2. The BCT also examined OU2 design documents, reviewed and commented on 11 findings of suitability to transfer (FOST), and initiated review of the Phase II EE/CA document.

A pending lawsuit delayed some activities scheduled for completion in FY97. Some additional RODs are required.

Plan of Action

- Continue operation of the OU1 and OU2 groundwater treatment systems
- Prepare approximately 11 FOSTs in support of 8 property transfers in FY98
- In FY98, continue assessment or cleanup of sites affected by ordnance or explosives
- Initiate a 5-year review for the OU1 treatment system in FY98
- Prepare a report on potential disposal areas at FAAF in FY98
- Consolidate remaining RI sites waste materials in the OU2 CAMU and complete OU2 cap construction in FY98
- Complete construction of pump-and-treat system for Site 2/12 in FY98
- In FY98, complete Ecological Risk Assessment for Site 3 (Beach Ranges)
- Complete the final ROD for Site 3 to address ecological risks in FY99
- Complete waste removal and post-closure risk assessments at six RI sites in FY98
- Complete Interim Removal Actions at Sites 34 and 39A in FY98

Sites Achieving RIP or RC Per Fiscal Year



Size: 1,480 acres
Mission: Served as headquarters for the 6th Army, the Letterman Army Institute of Research, and the Letterman Army Medical Center
HRS Score: NA
IAG Status: None
Contaminants: Petroleum hydrocarbons, heavy metals, solvents, pesticides, and lead-based paint
Media Affected: Groundwater and soil
Funding to Date: $78.5 million
Estimated Cost to Completion (Completion Year): $29.9 million (FY2006)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY2005

San Francisco, California

Restoration Background

In December 1988, the BRAC Commission recommended closure of the Presidio of San Francisco, including the Letterman Army Medical Center (Letterman AMC). The BRAC Commission made this recommendation primarily because the installation has no ability to expand and the Presidio and Letterman AMC functions could be relocated. The Army transferred the installation property to the National Park Service in October 1994.

Sites identified during studies at the installation include underground storage tanks (UST), a fuel distribution system, landfills, hazardous waste storage areas, and polychlorinated biphenyl (PCB)-contaminated electrical transformers. The most prominent sources of contamination are leaking USTs and a heating-fuel distribution system, which have caused petroleum contamination in groundwater and soil. Other contaminants include heavy metals, solvents, and pesticides.

Remedial Investigation and Feasibility Study (RI/FS) activities began in FY90. The second phase of RI fieldwork was completed in FY93 and was followed by a third phase in FY95. In FY94, the installation formed a BRAC cleanup team (BCT) and converted the technical review committee into a restoration advisory board (RAB). In addition, the installation completed an Environmental Baseline Survey report.

During FY95, the RAB met bimonthly to address issues related to restoration activities and to solicit comments from its members on restoration documents and plans. The National Park Service also began implementing a general management plan for reuse of the property. The BCT met monthly and focused on accelerating cleanup at the installation. The BCT also continued to expedite document review by conducting technical report presentations and maintaining an efficient document tracking system. All RI fieldwork was completed during FY95. The Army and regulators signed a Record of Decision (ROD) for the Public Health Service Hospital Area (formerly Letterman AMC).

Cleanup actions conducted at the installation before and during FY95 included UST removal, soil excavation, and containment and treatment of contaminated groundwater. The Army attempted to implement an innovative treatment system for Vehicle Maintenance Area ground-water contamination, but the system was not effective. Other treatment options are being studied.

In FY96, the installation submitted the RI Report to the regulators for review. In addition, the installation removed more than 90 USTs and 7,500 feet of abandoned fuel distribution line and excavated approximately 7,000 cubic yards of contaminated soil. More than 70,000 cubic yards of petroleum-contaminated soil were treated on site at a low-temperature thermal desorption unit. The installation abated asbestos in the Public Health Service Hospital and abated asbestos and lead-based paint in 41 residential buildings. An Interim Removal Action was conducted for petroleum-contaminated soil near Building 637.

FY97 Restoration Progress

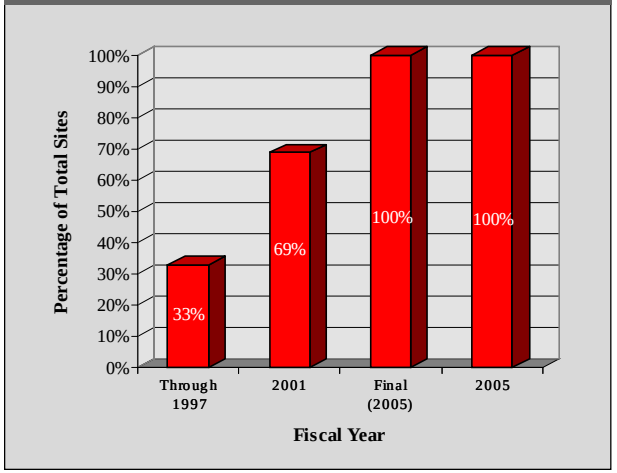
Interim Removal Actions were conducted for PCB-contaminated soil at two buildings. The installation removed 27,000 feet of fuel distribution system pipeline and an additional 70 USTs. In addition, approximately 10,000 cubic yards of petroleum-contaminated soil were treated on site by low-temperature thermal desorption. Asbestos was abated in 40 structures. Two petroleum-contaminated sites underwent extensive investigation during the year. The installation used innovative methods such as on-site laboratories, geoprobe, and magnetometers, to accelerate work.

The installation used technical working groups to resolve technical issues at various sites and developed basewide management plans for groundwater and USTs. To expedite document review, technical working groups also were used to write and review documents as they were developed. Partnering discussions and meetings helped resolve issues with regulatory agencies. The BCT published the final FS and RI, developed the program schedule, monitored the BRAC budget, and synchronized cleanup with reuse activities.

Plan of Action

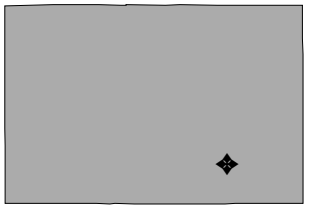
- Complete removal of USTs in FY98
- Complete remediation of the Engineering and Housing area in FY98
- Complete installationwide ROD in FY98
- Complete Crissy Field Remedial Action Plan and cleanup by April 1998

Sites Achieving RIP or RC Per Fiscal Year



Pueblo Chemical Depot

Size: 23,121 acres
Mission: Store chemical munitions
HRS Score: 78
IAG Status: None
Contaminants: Heavy metals, petroleum/oil/lubricants, VOCs, SVOCs, pesticides, explosives, PCBs, and UXO
Media Affected: Groundwater and soil
Funding to Date: $64.8 million
Estimated Cost to Completion (Completion Year): $61.8 million (FY2004)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY2004



Pueblo, Colorado

Restoration Background

In December 1988, the BRAC Commission recommended realignment of the Pueblo Depot Activity, primarily because of chemical demilitarization activities. The commission recommended relocating the supply mission and the ammunition mission to other bases. In October 1996, the Army placed Pueblo Depot Activity under the Chemical and Biological Defense Command and changed the name to Pueblo Chemical Depot.

Investigations identified sites such as a landfill, open burning and detonation grounds, an ordnance and explosives waste area, lagoons, former building sites, oil-water separators, a TNT washout facility and discharge system, and hazardous-waste storage units. Heavy metals and volatile organic compounds (VOC) are the primary contaminants affecting groundwater and soil at the installation.

Between FY89 and FY94, RCRA Facility Investigations (RFI) and corrective measures studies (CMS) were conducted for 45 solid waste management units (SWMU). In FY94, the installation formed a restoration advisory board (RAB) and a BRAC cleanup team (BCT). The installation also completed a final CERFA report in FY94; however, the state regulatory agency has not concurred in the installation's findings concerning CERFA-clean acreage.

In FY94, the community formed a Local Redevelopment Authority, which prepared and approved a land reuse plan. The plan is being revised. In cooperation with the local Pueblo Depot Activity Development Authority (PDADA), the installation prepared a master lease that allows subleasing of parts of the property.

In FY95, the installation constructed a groundwater extraction and treatment system to remediate and prevent the off-site migration of contaminated groundwater. An alternative drinking water supply was provided to a residence adjacent to the installation that could be affected by contamination.

The installation submitted draft RFI work plans for 14 SWMUs, completed a Phase II RFI for 13 SWMUs, and submitted an RFI Report for 8 SWMUs. Nine SWMUs were determined to require no further action (NFA). A partnering meeting was held with representatives of the installation, regulators, and stakeholders to accelerate the restoration process.

In FY96, the installation conducted cleanup and removal of TNT washout buildings and identified the source of TNT by-products in an off-post spring. The Army and the state are resolving groundwater plant operation and monitoring issues related to the Consent Order. The installation developed Team Pueblo to coordinate public involvement in restoration and cleanup activities. It also began an installationwide unexploded ordnance (UXO) survey and partial cleanup.

FY97 Restoration Progress

The Environmental Baseline Survey and the finding of suitability to lease were completed for 74 buildings. These buildings have been turned over to PDADA for reuse. The installation and the state resolved all Consent Order issues, including reducing a $10 million fine to $500,000. Soil removal at TNT washout lagoons is under way. The removed soil is being stored for future bioremediation. The installation developed the depot master plan and schedule for reuse and presented it to the RAB. Several early actions occurred, including demolition of TNT buildings, clearance of UXO from 445 acres, removal of the deactivation incinerator and 6 underground storage tanks (UST), decontamination of 2 buildings, and demolition of 28 structures.

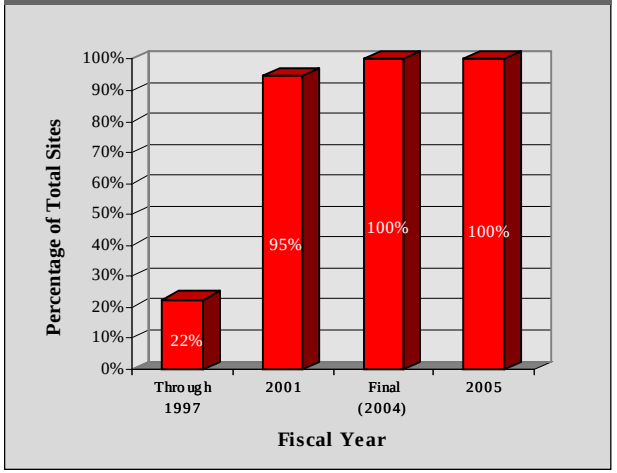
Working meetings and discussions helped resolve issues with regulatory agencies and expedited site characterization. The BCT was involved in activities such as scheduling, setting SWMU priorities, and making reuse environmental determinations.

The first activity in the current plan of action was originally scheduled for FY97 but was delayed until FY98 because the state is developing procedures for evaluation and approval of NFA recommendations.

Plan of Action

- Submit RCRA permit modification in FY98 to remove NFA site from the SWMU list
- Locate hot spots in the landfill in FY98 and determine the remediation required to eliminate the need for existing groundwater treatment system
- Conduct voluntary bioremediation cleanup in FY98
- Conduct voluntary hot-spot removal for SWMUs 14, 28, and 36 in FY98
- Initiate voluntary Interim Action at Circuli Springs Area of Concern 1 in FY98
- In FY98, clean up several buildings for reuse

Sites Achieving RIP or RC Per Fiscal Year



Puget Sound Naval Shipyard

Including Jackson Park Housing Complex

NPL

Size: 152 acres

Mission: Provide logistical support for assigned ships and service craft; perform authorized work in connection with construction, overhaul, and other tasks

HRS Score: 50.00 (Puget Sound Naval Shipyard); placed on NPL in May 1994
50.00 (Jackson Park Housing Complex); placed on NPL in May 1994

IAG Status: None

Contaminants: Heavy metals, VOCs, petroleum/oil/lubricants, grit, paint, solvents, construction debris, acids, and silver nitrate

Media Affected: Groundwater, surface water, sediment, and soil

Funding to Date: $50.7 million

Estimated Cost to Completion (Completion Year): $50.6 million (FY2006)

Final Remedy in Place or Response Complete Date: FY2003

Bremerton and Kitsap Counties, Washington

Restoration Background

Most of the Puget Sound Naval Shipyard (PSNS) is built on contaminated fill material. Metals and petroleum/oil/lubricants are the primary contaminants in groundwater, soil, surface water, and sediment at the installation. The main sources of contamination at the installation are past operations, such as cleaning and demilitarization of ordnance.

An Initial Assessment Study (IAS) conducted in FY83 identified six potentially contaminated sites at PSNS. In FY90, a supplemental Preliminary Assessment identified five other potentially contaminated sites. Nine of these 11 sites were recommended for further investigation.

A draft IAS, completed in FY83 for the Jackson Park Housing Complex (JPHC), identified eight sites. Two sites were recommended for further investigation, and the remaining six were recommended for no further action. A Site Inspection Report prepared in FY88 recommended further investigation of the two sites first identified in the IAS and divided one site into two parts.

In FY92, an underground storage tank (UST) Validation Report identified 26 abandoned tanks that required further investigation. Nine of those tanks were removed. In FY94, the remaining 17 tanks were removed or closed. Subsequent negotiations with the state regulatory agency revealed a need for further action for five tanks.

In FY94, the installation excavated contaminated soil from a site at PSNS and disposed of the soil at an approved off-site facility. Three Removal Actions were conducted at JPHC.

Sampling and analysis of soil and groundwater were conducted at three sites in the JPHC and a Remedial Investigation (RI) was completed in FY95. Soil sampling and analysis were conducted at three other sites in the housing complex. Also in FY95, an extensive demonstration of steam sparging was conducted at PSNS to address oil contamination in the subsurface environment. The installation entered into a Memorandum of Understanding with the U.S. Geological Survey to obtain the technical support of that agency.

During FY96, a Human Health Risk Assessment was completed for the terrestrial sites at JPHC, and development of Remedial Action (RA) work plans and decision documents was initiated for a site at PSNS. The demonstration of steam sparging continued. Also during FY96, corrective action was initiated for five USTs. RI and Feasibility Study (FS) activities were performed at six sites at PSNS and three sites at JPHC.

JPHC and PSNS formed their technical review committees (TRC) in FY91 and FY92, respectively. Both TRCs were converted to restoration advisory boards (RAB) in FY94. Both RABs were actively involved in an Environmental Cleanup Information Fair in FY95 at the Kitsap Regional Library. During FY96, the RABs met monthly and held a workshop to discuss issues related to community involvement and the hydrogeology of Puget Sound.

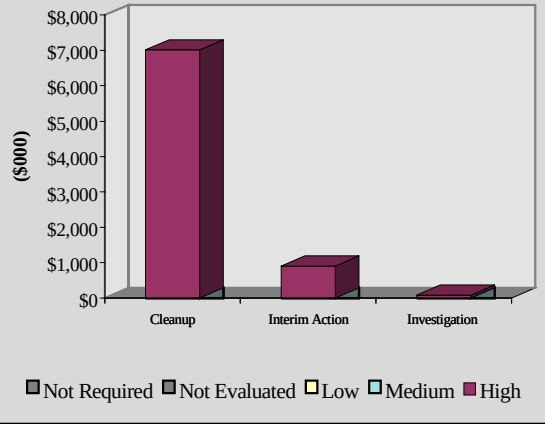
FY97 Restoration Progress

The installation completed the demonstration of steam sparging, which was so successful that the installation awarded a contract to design and construct a full-scale system. The installation used geoprobe to assist with the benzene seep investigation at JPHC. Site Characterization and Analysis Penetrometer System (SCAPS) was used to delineate the extent of petroleum contamination at PSNS operable unit (OU) C. RAs for six sites continued in FY97. RI/FS was not completed on schedule.

Plan of Action

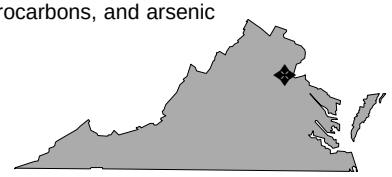
- Complete the Remedial Design (RD) for three sites at the JPHC in FY98
- Complete RD/RA at PSNS OU NSC and PSNS OU A in FY98
- Complete RI for PSNS OU B in FY98
- Complete construction and shakedown of full-scale steam sparging system at PSNS OU C in FY98
- Complete RI, FS, Proposed Plan, and Record of Decision (ROD) for JPHC terrestrial OU and marine OU in FY98

FY98 Funding by Phase and Relative Risk



Quantico Marine Corps Combat Development Command — NPL

Size: 60,000 acres
Mission: Provides military training and supports research, development, testing, and evaluation of military hardware
HRS Score: 50.00; placed on the NPL in June 1994
IAG Status: RCRA FFCA signed December 31, 1991; Federal Facility Agreement under negotiation
Contaminants: PCBs, pesticides, VOCs, phenols, heavy metals, petroleum hydrocarbons, and arsenic
Media Affected: Surface water, sediment, and soil
Funding to Date: $31.9 million
Estimated Cost to Completion (Completion Year): $104.1 million (FY2020)
Final Remedy in Place and Response Complete Date: FY2014



Quantico, Virginia

Restoration Background

Quantico Marine Corps Combat Development Command operated a municipal landfill throughout the 1970s. After the 26-acre landfill closed, the area was used by the Defense Reutilization and Marketing Office as a scrapyard. During that time, polychlorinated biphenyl (PCB)–containing transformers were drained onto the ground so that copper and transformer casings could be recovered. Contamination at the old landfill area was the primary reason for the installation's placement on the National Priorities List (NPL). Site types at the installation include surface disposal areas, landfills, underground storage tanks (UST), and disposal pits that contain contaminated soil, surface water, and sediment.

Since FY81, 243 solid waste management units (SWMU) have been identified at Quantico. The number of SWMUs is expected to increase with the completion of the Federal Facility Agreement (FFA). Currently, the database contains an official count of 27 Installation Restoration sites, 71 SWMUs, and 2 USTs. Between FY81 and FY94, the installation completed Preliminary Assessments for 17 sites and 24 SWMUs, Site Inspections for 7 sites, RCRA Facility Assessments (RFA) for 4 SWMUs, and RCRA Facility Investigations (RFI) for 5 SWMUs. A corrective measures study (CMS) was completed for one SWMU. In addition, initial site characterizations were completed for two UST sites, and an investigation was completed for one UST site.

The installation completed several Interim Remedial Actions (IRA): in situ soil treatment and long-term monitoring (LTM) for one SWMU; removal of PCB-contaminated soil and scrap metal from two sites to minimize the spread of contamination; removal and incineration of pesticide- and arsenic-contaminated soil from one site; installation of runoff controls to prevent erosion of contaminated surface soil at one site; removal of waste from an embayment and placement of a stone revetment along the shoreline; and removal of drums, tanks, and bulk containers contaminated with petroleum products from one UST site.

During FY95, the installation began development of a corrective action plan for one UST site. In addition, a Corrective Measures Design (CMD) was completed, corrective measures implementation (CMI) was initiated, and a final Remedial Action (RA) for the capping of a landfill was initiated for one SWMU. A CMD, CMI, and a final RA for the removal of contaminated soil also were completed, and operation and maintenance (O&M) and LTM were initiated for two SWMUs.

The technical review committee (TRC), formed in FY89, is composed of representatives from state and federal regulatory agencies and the local community. The TRC has not been converted to a restoration advisory board, because of insufficient community interest. In FY92, the installation established three information repositories, each containing a copy of the administrative record. In FY95, a community relations plan was completed.

During FY96, the installation prepared Remedial Investigation and Feasibility Study (RI/FS) work plans for seven sites and initiated an IRA for the capping of a landfill at one site. The installation also continued a final RA for the capping of a landfill at one SWMU.

FY97 Restoration Progress

A Record of Decision was signed for one site, and two early actions were initiated. The installation also began LTM for one SWMU and initiated RI/FSs for several sites. Land treatment with phytoremediation was implemented along with fieldwork techniques, including a geoprobe, an on-site laboratory, and ground-penetrating radar.

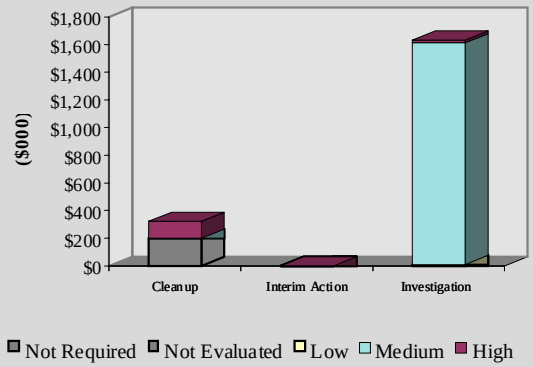
The installation entered into a partnership, called the Quantico Environmental Restoration Team (QERT), with regulatory agencies and contractors. The team meets monthly to discuss and determine investigation requirements. QERT allows all parties to interact and reach consensus on cleanup activities.

Some activities scheduled for completion in FY97 were delayed pending state response.

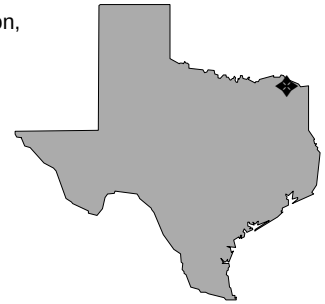
Plan of Action

- Investigate and close 20 sites/SWMUs with sampling in FY98
- Investigate five site screening areas in FY98
- Complete IRAs for two sites in FY98
- Complete a CMS and initiate corrective action for one SWMU in FY98
- Continue RI/FSs for five sites in FY98
- Initiate screening investigations for four SWMUs in FY98
- Initiate Remedial Design and RA for one site in FY99

FY98 Funding by Phase and Relative Risk



Size: 19,081 acres
Mission: Provide maintenance for light combat vehicles, support rubber production, store ammunition, and conduct training
HRS Score: NA
IAG Status: None
Contaminants: TCE
Media Affected: Groundwater, surface water, and sediment
Funding to Date: $12.2 million
Estimated Cost to Completion (Completion Year): $24.2 million (FY2004)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY2002



Texarkana, Texas

Restoration Background

In July 1995, the BRAC Commission recommended realignment of Red River Army Depot. All maintenance missions except those related to the Bradley Fighting Vehicle Series were recommended for relocation to other depots. The installation will retain its ammunition storage, intern training, civilian training, and rubber production missions.

Areas of environmental concern identified in environmental investigations at the depot include oil-water separator lagoons, spill sites from previous chemical cleanup activities, and spill sites from pesticide storage and mixing activities. Trichloroethene (TCE) is the main contaminant affecting groundwater.

Completed Interim Actions at the installation include removing the former Hays Treatment Plant Dunbar filter beds in FY88, demolishing buildings and removing contaminated soil in FY94 and FY95, and demolishing Army-Peculiar Equipment.

In FY95, the installation formed a BRAC cleanup team (BCT), which includes representatives of the installation and of federal and state regulatory agencies. The BCT prepared a BRAC Cleanup Plan (BCP) (Version I) outlining current and future strategic and planning efforts for all environmental programs associated with the installation's BRAC parcels. The community also formed a Local Redevelopment Authority. Also in FY95, the installation continued its partnership with the Texas Natural Resource Conservation Commission (TNRCC) through the Defense and State Memorandum of Agreement program. Those efforts helped reduce regulatory impediments by addressing issues related to the scope of Interim Remedial Actions (IRA) and fieldwork. IRAs included removal of more than 2,000 cubic yards of contaminated sediment from the north and south stormwater drainage ditches in the Wastewater Treatment Area.

In FY96, the installation commander formed a restoration advisory board (RAB). The installation prepared the final draft Environmental Baseline Survey (EBS) Report. BCP Version I was completed, and strategies and planning efforts outlined in the BCP were initiated at the end of the fiscal year.

FY97 Restoration Progress

The Red River Local Redevelopment Authority (RRLRA) requested that excess footprint at the installation be modified to make the footprint contiguous. The footprint acreage was changed by removing some acres and adding new acres. The new footprint total is 765 acres. Because of this change, a draft Supplemental EBS was completed in FY97. Additional cultural resource survey actions are under way. Privatization of utilities also is being pursued. The RRLRA is interested in being the utility provider. The Army is revising the preliminary draft Environmental Assessment to include additional information about the acreage. Closure was complete for the Final and Intermediate lagoons at the industrial waste treatment plant (IWTP).

The BCT approved the final EBS and CERFA letter, participated in the Army peer review test program, reviewed and commented on five RCRA Facility Investigations, approved a depotwide risk assessment scope of activities, and conducted fieldwork that corrected the U.S. Geological Survey map for the installation area. BCP Version 1 was completed, as was the land reuse plan. Six-hundred-and-eighty-four acres are awaiting regulatory concurrence as CERFA-clean.

The change in excess footprint (mentioned above) caused the restoration advisory board to reformulate several requirements. This process, plus the addition of acreage and the issue of privatizing the utilities, delayed the first five activities on the current plan of action which were originally scheduled for completion in FY97.

Plan of Action

- Initiate RCRA Facility Investigations in FY98 at Environmental Conditions of Property (ECP) "7" sites identified in the EBS
- In FY98, complete final Environmental Assessment and a finding of no significant impact
- Submit the administrative record in FY98
- Complete fieldwork and archives search for natural and cultural resources and issue Memorandum of Agreement in FY98
- Complete BCP Version II in FY98
- Develop installation heavy-metals background levels for soil and groundwater in FY98
- Complete risk assessment activities for nine sites in FY98
- Close two lagoons in the Wastewater Treatment Area in FY98
- Jointly develop a 6-year work plan in FY98 with the TNRCC
- Complete a cultural resources survey in FY98
- Complete a master finding of suitability to lease for the excess footprint in FY98
- Complete finding of suitability to transfer for all ECP "1 and 2" sites in FY98

Sites Achieving RIP or RC Per Fiscal Year